

CURRICULUM VITAE

Klaus Wolter

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PERSONAL: German Citizen / Permanent U.S. Resident

EDUCATION: 1987 Ph.D., Department of Meteorology, University of Wisconsin -
Madison; Dissertation: *Modes of surface circulation and climate over
the tropical Atlantic, Eastern Pacific, and Indian Oceans*

1981 “Diplom” (equivalent of M.Sc.), Department of Meteorology,
University of Hannover, Germany. Translated thesis title: “*Dust
transports over North Africa and the adjacent Atlantic*”.

EXPERIENCE: 1988 -now CIRES Research Associate, University of Colorado - Boulder
1987 - 88 UCAR Visiting Postdoctoral Scientist, Climate Analysis Center,
National Meteorological Center, Washington, DC

PEER-REVIEWED PUBLICATIONS

- Hoerling, M., **K. Wolter**, J. Perlwitz, X. Quan, J. Eischeid, H. Wang, S. Schubert, H. Diaz, and R. Dole, 2014: Northeast Colorado extreme rains interpreted in a climate change context. *Bull. Amer. Meteor. Soc.*, **95**, S15–S18. Downloadable at: <http://www2.ametsoc.org/ams/index.cfm/publications/bulletin-of-the-american-meteorological-society-bams/explaining-extreme-events-of-2013-from-a-climate-perspective/>
- Lukas, A.J., J.J. Barsugli, N. Doesken, I. Rangwala, and **K. Wolter**, 2014: Climate Change in Colorado – A synthesis to support water resources management and adaptation, 2nd edition. Report by the Western Water Assessment for the Colorado Water Conservation Board, Boulder, 108pp. Downloadable at: <http://www.colorado.edu/climate/co2014report/>
- Dole, R., M. Hoerling, A. Kumar, J. Eischeid, J. Perlwitz, X. Quan, G. Kiladis, R. Webb, D. Murray, M. Chen, **K. Wolter**, and T. Zhang, 2014: The making of an extreme event: Putting the pieces together. *Bull. Amer. Meteor. Soc.*, **95**, 427–440. (<http://journals.ametsoc.org/doi/abs/10.1175/BAMS-D-12-00069.1>)
- Polley, W.H., D.D. Briske, J.A. Morgan, **K. Wolter**, D.W. Bailey, and J.R. Brown, 2013: Climate Change and North American Rangelands: Evidence, Trends, and Implications. *Rangeland Ecology & Management*, 66, 493–511.
- Gill, E., T.N. Chase, R.A. Pielke Sr., and **K. Wolter**, 2013: Northern Hemisphere summer temperature and specific humidity anomalies from two reanalyses. *J. Geophys. Res. Atmos.*, **118**, 8297–8305. (<http://onlinelibrary.wiley.com/doi/10.1002/jgrd.50635/full>)
- Hoerling, M., M. Dettinger, **K. Wolter**, J. Lukas, J. Eischeid, R. Nemani, B. Liebmann, and K. Kunkel, 2013: Chapter 5: Evolving weather and climate conditions of the Southwest United States. In *Assessment of Climate Change in the Southwest U.S.: A Report prepared for the National Climate Assessment*, Gregg Garfin (ed.), Island Press, 74–100.
- Peterson, T.C., R.R. Heim, Jr., R. Hirsch, D.P. Kaiser, H. Brooks, N.S. Diffenbaugh, R.M. Dole, J.P. Giovannetone, K. Guirguis, T.R. Karl, R.W. Katz, K. Kunkel, D. Lettenmaier, G.J. McCabe, C.J. Paciorek, K.R. Ryberg, S. Schubert, V.B.S. Silva, B.C. Stewart, A.V. Vecchia, G. Villarini, R.S. Vose, J. Walsh, M. Wehner, D. Wolock, **K. Wolter**, C.A. Woodhouse, D. Wuebbles, 2013: Monitoring and Understanding Changes in Heat Waves, Cold Waves, Floods and Droughts in the United States: State of Knowledge. *Bull. Amer. Meteor. Soc.*, **94**, 821–834 (available online at: <http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-12-00066.1>)

- Kunkel, K.E., T.R. Karl, H. Brooks, J. Kossin, J.H. Lawrimore, D. Arndt, L. Bosart, D. Changnon, S.L. Cutter, N. Doesken, K. Emanuel, P.Ya. Groisman, R.W. Katz, T. Knutson, J. O'Brien, C.J. Paciorek, T.C. Peterson, K. Redmond, D. Robinson, J. Trapp, R. Vose, S. Weaver, M. Wehner, **K. Wolter**, and D. Wuebbles, 2013: Monitoring and Understanding Trends in Extreme Storms: State of Knowledge. *Bull. Amer. Meteor. Soc.*, **94**, 499-514. (<http://journals.ametsoc.org/doi/pdf/10.1175/BAMS-D-11-00262.1>)
- Wolter, K.**, and M.S. Timlin, 2011: El Niño/Southern Oscillation behaviour since 1871 as diagnosed in an extended multivariate ENSO index (MEI.ext). *International J. of Climatology*, **31**, 1074-87.
Downloadable at: <http://onlinelibrary.wiley.com/doi/10.1002/joc.2336/abstract>
- Ray, A.J., J.J. Barsugli, K.B. Averyt, **K. Wolter**, M. Hoerling, N. Doesken, B. Udall, and R.S. Webb, 2008: Climate Change in Colorado – A synthesis to support water resources management and adaptation. Report by the Western Water Assessment for the Colorado Water Conservation Board, Boulder, 58pp. Downloadable at: http://cwcb.state.co.us/NR/rdonlyres/B37476F5-BE76-4E99-AB01-6D37E352D09E/0/ClimateChange_FULL_Web.pdf
- Chase, T.N., **K. Wolter**, R.A. Pielke Sr., and Ichiaque Rasool, 2008: Reply to comment by W.M. Connolley on “Was the 2003 European summer heat wave unusual in a global context?” *Geophys. Res. Lett.*, **35**, L02704, doi:10.1029/2007GL031574.
Downloadable at: <http://www.climateisci.org/publications/pdf/R-310a.pdf>
- Pielke, R.A. Sr., **K. Wolter**, O. Bliss, N. Doesken, and B. McNoldy, 2007: The July 2005 Denver heat wave: How unusual was it? *National Weather Digest*, **31**, 24-35.
Downloadable at: <http://www.climateisci.org/publications/pdf/R-313.pdf>
- Chase, T.N., **K. Wolter**, R.A. Pielke Sr., and I. Rasool, 2006: Was the 2003 European summer heat wave unusual in a global context? *Geophys. Res. Lett.*, **33**, L23709, doi:10.1029/2006GL027470.
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- Pielke, R.A., Sr., N. Doesken, O. Bliss, T. Green, C. Chaffin, J.D. Salas, C.A. Woodhouse, J.J. Lukas, and **K. Wolter**, 2005: Drought 2002 in Colorado: An Unprecedented Drought or a Routine Drought? *Pure Appl. Geophys.*, **162**, 1455-1479. Downloadable at: <http://www.climateisci.org/publications/pdf/R-285.pdf>
- Wolter, K.**, S.J. Lubker, and S.D. Woodruff, 2003: Quality control in recent and pending COADS releases. *Advances in the Applications of Marine Climatology – The Dynamic Part of the WMO Guide to the Applications of Marine Climatology*, WMO/TD-No. **1081** (JCOMM Technical Report No. 13), 116-123. [whole WMO Report at: http://icoads.noaa.gov/jcomm_tr13.pdf]
- Wolter, K.**, R.M. Dole, and C.A. Smith, 1999: Short-term climate extremes over the continental U.S. and ENSO. Part I: Seasonal temperatures. *J. Climate*, **12**, 3255-3272. Downloadable at: <http://journals.ametsoc.org/doi/abs/10.1175/1520-0442%281999%29012%3C3255%3ASTCEOT%3E2.0.CO%3B2>
- Wolter, K.**, and M.S. Timlin, 1998: Measuring the strength of ENSO events - how does 1997/98 rank? *Weather*, **53**, 315-324.
- Wolter, K.**, 1997: Trimming problems and remedies in COADS. *J. Climate*, **10**, 1980-1997.
- Wolter, K.**, 1994: Climate since A.D. 1500 by R.S. Bradley and P.D. Jones (Book Review). *Arctic and Alpine Research*, **26**, 93-95.
- Hastenath, S., and **K. Wolter**, 1992: Large-scale patterns and long-term trends of circulation variability associated with Sahel rainfall anomalies. *J. Meteor. Soc. Japan*, **70**, 1045-1055.
- Wolter, K.**, and S. Hastenrath, 1989: Annual cycle and long-term trends of circulation and climate variability over the tropical oceans. *J. Climate*, **2**, 1329-1351.
- Wolter, K.**, 1989: Modes of tropical circulation, Southern Oscillation, and Sahel rainfall anomalies. *J. Climate*, **2**, 149-172. Downloadable at: <http://journals.ametsoc.org/doi/abs/10.1175/1520-0442%281989%29002%3C0149%3AMOTCSO%3E2.0.CO%3B2>
- Wolter, K.**, 1987: The Southern Oscillation in surface circulation and climate over the Atlantic, Eastern Pacific, and Indian Oceans, as captured by cluster analysis. *J. Climate Appl. Meteor.*, **26**, 540-558.

CURRICULUM VITAE cont.

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- Tetzlaff, G., M. Sarnthein, and **K. Wolter**, 1982: Pleistocene and Holocene climates in Africa; Reply to Sharon Nicholson. *Nature*, **296**, 779-780.
- Sarnthein, M., G. Tetzlaff, B. Koopmann, **K. Wolter**, and V. Pflaumann, 1981: Glacial and interglacial wind regimes over the eastern subtropical Atlantic and Northwest Africa. *Nature*, **293**, 193-196.
- Tetzlaff, G. and **K. Wolter**, 1980: Meteorological patterns and the transport of mineral dust from the North African continent. *Paleoecology of Africa*, **12**, 31-45.

HONORS AND AWARDS

Governor's Award for High Impact Research, 2013 (<https://www.youtube.com/watch?v=4TVIXo9dPt0>)
Scholarship Award to Attend University of Wisconsin-Madison by German Academic Exchange Service, 1982-83

PRIMARY RESEARCH INTERESTS

My main research interests lie in empirical climate research, in particular the application of statistical methods to climate problems, such as the impact of ENSO (El Niño/Southern Oscillation) on world-wide climate. I have developed and refined a "Multivariate ENSO Index" (**MEI**) based on tropical Pacific ship-based observations of sea level pressure, near-surface wind fields, sea – and air surface temperatures, as well as total cloudiness. The MEI is more robust than conventional indices in monitoring the ENSO phenomenon. Monthly updates and discussions of the MEI as well as relevant publications can be found under <http://www.esrl.noaa.gov/psd/enso/mei/>

In the last decade, I have been able to devote more attention to the analysis and prediction of U.S. climate, being involved in the Western Water Assessment (**WWA**) project at CU and, more recently **NIDIS** (National Integrated Drought Information System). In this context, I have developed statistical tools that allow me to make seasonal climate predictions, such as documented at the Colorado Water Conservation Board: <http://cwcb.state.co.us/public-information/flood-water-availability-task-forces/Pages/main.aspx>

I have been involved in recent regional and national assessments of extreme climate events as well as overall climate change (see references above). A 2008 report to the Governor (to be in 2014) is listed here: <http://cwcb.state.co.us/public-information/publications/Documents/ReportsStudies/ClimateChangeReportFull.pdf>

I am also part of the 'Climate Scene Investigation' team here at the NOAA-ESRL Physical Science Division (<http://www.esrl.noaa.gov/psd/csi/>) that attempts to sort out how much if any of recent climate and weather extremes can be attributed to anthropogenic forcing (such as the March 2012 'heat wave', Dole et al., 2014).